

MEMS MIRRORS WITH PRECISION CLAMPING MECHANISM

ABSTRACT OF THE DISCLOSURE

5 A microelectromechanical (MEMS) apparatus has a base and a flap
with a portion coupled to the base so that the flap may move
out of the plane of the base between first and second position.
The base may have a cavity with largely vertical sidewalls that
10 contact a portion of the flap when the flap is in the second
position. Electrodes may be placed on the vertical sidewalls and
electrically isolated from the base to provide electrostatic
clamping of the flap to the sidewall. The base may be made
from a substrate portion of a silicon-on-insulator (SOI) wafer
15 and the flap defined from a device layer of the SOI wafer. The
flap may be connected to the base by one or more flexures such
as torsional beams. An array of one or more of such structures
may be used to form an optical switch.